

REMARKS

The comments of the Examiner as set forth in the Office Paper mailed 6 April 2007 have been carefully studied and reviewed.

5 Claims 1-32 are pending in the application.

Claims 1-8, 22, 23 and 25-32 have been withdrawn from consideration.

Claims 9-21 and 24 have been rejected.

Claim 11-13, 17-19

10 Claims 11-13 and 17-19 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, specifically, the claims recite "% wax" without specifying that the percent is by weight, thereby rendering the claimed amount of wax unclear.

15 These claims have been amended to indicate that the "% wax" refers to percent wax by weight. This is evident from the specification, wherein at p. 22, lines 25-27 Applicants specify that weight percent is being used throughout the claims and the specification. The specification at p. 26, lines 17-29, and in Tables 1 and 2, at p. 27, 20 lines 4-19 and p. 29, lines 9-31, respectively, also demonstrates that percent wax refers to weight percent wax. These amended claims particularly point out and distinctly claims the subject matter which applicant regards as the invention, and thus define patentable subject matter. Therefore, the rejections of Claims 11-13 and 17-19 must respectfully be withdrawn.

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Claims 9-21 and 24.

Claims 9-21 and 24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Sheridan (U.S. Pat. No. 3,677,808) and King (U.S. Pat. No. 3,198,776) in view of Sleeter (U.S. Pat. No. 6,277,310) and Song (U.S. Pat. No. 30 6,010,596) and optionally Borsinger et al. (U.S. Pat. App. No. 2006/0289138).

Borsinger et al. (U.S. Pat. App. No. 2006/0289138 A1, filed 3-17-2003) is alleged to be available as prior art under 35 U.S.C. §102(e) because

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(1) the filing date for claims 9-21 and 24 of the present pending application is 10-9-03 and

(2) claims 9-21 and 24 are not entitled to the benefit of the filing date (10-10-02) of the provisional application filed 10-10-02.

5 Claims 9-21 and 24 are alleged not to be directed solely to the subject matter described and supported by the provisional application. The subject matter of heating to a temperature between approximately 200 degrees F to approximately 300 degrees F is alleged to have been first introduced in this application 10/682,283 and is not reasonably conveyed by provisional application 60/417,620.

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In response, Applicants respectfully traverse this rejection because the Borsinger et al. provisional patent application is not an appropriate reference under 35 U.S.C. §102. The Borsinger et al. provisional patent application also shares a common assignee as the present pending application.

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The subject matter of the present pending application that is being questioned is in fact supported by the specification of the Borsinger et al. provisional application 60/417620 filed 10 Oct. 2002.

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For example, in Ex. 1 of the provisional application, p. 11, paragraph towards the page bottom, commencing with "Fifteen grams (15 gm)..." indicates that the wax, which according to Table 1 has a melting point ranging from 155-160 degrees F, was melted on a hot plate, and then mixed with boiling water, indicating that the temperature of the mixture exceeded 200 degrees F.

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The subsequent paragraph (of the provisional application) starting on p. 11, 2 lines from the bottom and continuing through the end of Example 1 states the gypsum formulations were heated in an oven that was heated to 257 degrees F. Lines 1-2 on page 13 of the provisional application indicate the samples were placed in an oven for one hour at a temperature of 200 degrees F.

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In the present pending application, Example 1 starts on p. 25, line 28 and continues to p. 28, line 4. The same temperatures discussed in the preceding paragraphs regarding the provisional application are contained within this Example (p. 26, lines 17-29; p. 27, lines 20-26), thereby providing support for the claimed temperatures.

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Thus, it is apparent that the rejection of these claims based on 35 USC §102(e) is improper, that there is support for Claims 9-21 and 24 in the provisional application that is the priority document for the present pending application, and that the Borsinger et al. reference, U.S. Pat. App. No. 2006/0289138 A1 is an improper reference, and it is 5 respectfully submitted that any rejections based on this improper reference must therefore be withdrawn.

It is alleged to be well known to incorporate wax in a slurry comprising gypsum and water during manufacture of a gypsum board to make the board water resistant as 10 described by Sheridan and King, and the state of the art, as alleged by the Examiner, is that Sheridan and King substantially disclose the claimed method of rendering a gypsum product water resistant, except for the specific wax.

Applicants respectfully traverse the claim rejections under 35 U.S.C. §103(a). To 15 reject a claimed invention based upon its obviousness over the prior art, the examiner must support such a rejection by establishing the invention's prima facie obviousness. The examiner must show where in the art cited there is a description of the claimed invention sufficient to have taught or suggested the invention to ordinarily skilled artisans of the time (see, e.g., ACS Hospital Systems, Inc., v. Montefiore Hospital, 221 USPQ 20 929, 933 (F. Cir. 1984); see also, In re Fine, 5 USPQ2d 1596 (F. Cir. 1988)).

Evaluation of whether the cited documents provide the necessary description requires consideration of "(1) whether the prior art would have suggested to those of ordinary skill in the art they should make the claimed [invention] ... and (2) whether the 25 prior art would have also revealed that in so making ... those of ordinary skill would have a reasonable expectation of success" (In re Vaeck, 20 USPQ2d 1438, 1442 (F.Cir. 1991)). "Both the suggestion and the reasonable expectation of success must be found in the prior art, not in the applicant's disclosure" (In re Vaeck, supra). That is, "one cannot use hindsight reconstruction to pick and choose amongst isolated disclosures in 30 the prior art to deprecate the claimed invention" (In re Fine, supra at 1600).

In a recent decision, the Supreme Court upheld the validity of the teaching, suggestion and motivation test recited above, although indicating it should not be applied rigidly. KSR International Co., v. Teleflex, Inc., 127 S.Ct. 1727 (2007). The

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Court however acknowledged the importance of "identifying a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" in an obviousness determination. KSR, 127 S.Ct. at 1731.

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Claims 9-21 and 24

As to claims 9-21 and 24 it is alleged that it would have been obvious to one of ordinary skill in the art to use wax such as hydrogenated soybean or hydrogenated palm as the wax based on the King, Sheridan, Sleeter, and Borsinger et al. references.

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The King reference actually teaches away from the present invention, as embodied in these Claims. Although the reference mentions the use of emulsions, King discusses the problems associated with using emulsions, for example, that it is necessary to break the emulsion irreversibly, because of the tendency to reemulsify the waterproofing agents and remove them from the material, and stating that "This is often rather difficult to accomplish, and uniform results are not always obtained" (col 2, lines 2-8).

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Sheridan, similarly, effectively teaches away from the present invention.

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Sheridan notes that a problem associated with using emulsions for waterproofing various substrates: the emulsifying agents sometimes interfere with the ultimate potential sizing efficiency of the wax (col. 1, lines 44-48), leading that inventor to develop a process of steam atomizing wax to obtain a more efficient waterproofing of the substrate. Thus, if one were to follow the teachings of Sheridan regarding the use of emulsions, one would also be led away from Applicant's invention, and therefore, Sheridan is an improper reference under 35 U.S.C. §103(a).

The Sleeter reference (U.S. Pat. No. 6,277,310 B1) recites a number of different ways a waterproofing agent could be applied to a wood-based substrate, (oriented strand board is used in the reference's Examples), but it is merely speculation to assume that an agent that is effective on a wood-based substrate would show similar behavior with a different substrate such as gypsum, as in the present pending claims.

The Borsinger *et al.* provisional patent application, as stated previously, is an improper reference under 35 U.S.C. §102(e), and therefore not a factor.

5 Thus, none of the references, either alone or in combination, teaches using a low iodine value hydrogenated wax to render gypsum water render a gypsum product water resistant as described by Applicant in these claims, and accordingly, Claims 9-21 and 24 define patentable subject matter. Applicant therefore respectfully submits that the rejections of these claims under 35 U.S.C. §103(a) must be withdrawn.

10 **Temperature range: 200 to 300 degrees F:**

As to the temperature range of 200-300 degrees F, it is alleged to have been obvious to one of ordinary skill in the art to heat the gypsum board at a temperature of approximately 200 degrees F to approximately 300 degrees F to melt the wax and dry the gypsum board based on the King and Song references, and that the optimal melting 15 point of the wax and the optimum temperature for melting the wax and drying the board could have been determined without undue experimentation in view of the teachings of the applied prior art.

20 In response, Applicants note that King fails to teach any specific temperature, and that Song limits the preferable drying temperature to a range between 170 degrees F and 200 degrees F. Claim 9 has been amended to refer to a temperature that is greater than 200 degrees F, but still approximately 300 degrees F. Basis for the amendment is the specification in Example 1, p. 27, lines 20-26.

25 **Claims 10-15 and 20**

As to claims 10-15 and 20 it is alleged that it would have been obvious to one of ordinary skill in the art to use the claimed wax solid since (1) King teaches using 0.5-15% by weight wax and applying the wax in the form of a powder and (2) Sleeter teaches using soy wax and applying the wax in the form of a powder.

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A thorough review indicates that the King reference actually teaches away from the present invention, as embodied in these Claims. Although the reference mentions using solid wax, the preferred method is to melt the wax first, then spray it into the mixture (col. 2, lines 18-22).

Although the Sleeter reference (U.S. Pat. No. 6,277,310 B1) recites a number of different ways a waterproofing agent could be applied to a wood-based substrate, (oriented strand board is used in the reference's Examples), it is merely speculation to 5 assume that an agent that is effective on a wood-based substrate would show similar behavior with a different substrate such as gypsum, as in the present pending claims.

Accordingly, since none of the references, either alone or in combination, teaches using wax powder as employed by Applicant in these claims, Claims 10-15 and 10 20 define patentable subject matter. Applicant therefore respectfully submits that the rejections of these claims under 35 U.S.C. §103(a) must be withdrawn.

Further, having previously distinguished the independent claim, Claim 9 from the prior art, Applicant respectfully submits that the dependent claims are therefore 15 distinguishable from the prior art, and therefore define patentable subject matter.

Claims 16-19 and 21

Regarding Claims 16-19 and 21, it is alleged that it would have been obvious to one of ordinary skill in the art to use the claimed wax emulsion since (1) King and 20 Sheridan teach that it has been previously known to apply wax in the form of an emulsion, (2) King teaches using 0.5-15% by weight wax and applying the wax in the form of a powder and (3) Sleeter teaches using soy wax and applying the wax in the form of an emulsion.

25 But a more thorough review indicates that the King reference actually teaches away from the present invention, as embodied in Claims 16-19 and 21. Although the reference mentions the use of emulsions, King discusses the problems associated with using emulsions, for example, that it is necessary to break the emulsion irreversibly, because of the tendency to reemulsify the waterproofing agents and remove them from 30 the material, and stating that "This is often rather difficult to accomplish, and uniform results are not always obtained" (col 2, lines 2-8).

Sheridan also notes that a problem associated with using emulsions for waterproofing various substrates: the emulsifying agents sometimes interfere with the

ultimate potential sizing efficiency of the wax (col. 1, lines 44-48), leading that inventor to develop a process of steam atomizing wax to obtain a more efficient waterproofing of the substrate. Thus, if one were to follow the teachings of Sheridan regarding the use of emulsions, one would also be led away from Applicant's invention, and therefore,

5 Sheridan is an improper reference under 35 U.S.C. §103(a).

Further, using a powdered wax as a waterproofing agent, as alleged for the King reference, is insufficient to teach using a wax as an emulsion to deliver a waterproofing agent. The Sleeter reference (U.S. Pat. No. 6,277,310 B1) recites a number of different 10 ways a waterproofing agent could be applied to a wood-based substrate. This wood-based substrate used in the reference's Examples is oriented strand board ("OSB"), and it is merely speculation to assume that an agent that is effective on a wood-based substrate would show similar behavior with a different substrate such as gypsum, as in the present pending claims.

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But none of the references, either alone or in combination, teaches using an emulsion in the concentration ranges employed by Applicant in these claims, and accordingly, Claims 16-19 and 21 define patentable subject matter. Applicant therefore respectfully submits that the rejections of these claims under 35 U.S.C. §103(a) must be 20 withdrawn.

Claim 24

Claim 24 has been cancelled without prejudice.

25 Conclusion

Applicant thanks the Examiner for his thoughtful review of this application, and respectfully requests the Examiner review the pending Claims and to find that they define patentable subject matter. Thus, it is respectfully requested that the present 30 pending Claims be allowed.

In the event that this response does not place the application in condition for allowance, the Examiner is respectfully requested to telephone the undersigned in order

that an attempt can be made to place the application in condition for allowance as expeditiously as possible.

Respectfully submitted,

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BENJAMIN APPELBAUM

Attorney for Applicant

Reg. No. 38,068

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15 Benjamin Appelbaum, Ph.D.
Attorney-At-Law
27 Bennington Dr
Flanders, New Jersey 07836
Tel:(973)-927-5573
Fax:(973)-584-2621

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